SUGGESTED SOLUTION

CA FINAL NOVEMBER 2016 EXAM

I S C A

Test Code - F N J 6 0 0 8

BRANCH - (MUMBAI) (Date : 12.06.2016)

Answer-1 (a) :

(a)   **Abstract System:** Abstract System also known as Conceptual System or Model can be defined as an orderly arrangement of interdependent ideas or constructs. For example, a system of theology is an orderly arrangement of ideas about God and the relationship of humans to God.   **(2 Marks)**

(b)   **Physical System:** Physical System is a set of tangible elements, which operate together to accomplish an objective e.g. Computer system, University system etc.   **(1 Mark)**

(c)   **Open System:** An Open System interacts with other systems in its environment and changes with changes in the environment. For example; Information system is an open system because it takes input from the environment and produces output to the environment, which changes as per the changes in the environment   **(2 Marks)**

Answer-1 (b) :

Office Automation Systems (OAS) is the most rapidly expanding computer based information systems. Different office activities can be broadly grouped into the following types of operations: **(0.5 Mark)**

1.   Document Capture – Documents originating from outside sources like incoming mails, notes, handouts, charts, graphs etc. need to be preserved.   **(0.5 Mark)**

2.   Document Creation – This consists of preparation of documents, dictation, editing of texts etc. and takes up major part of the secretary's time   **(0.5 Mark)**

3.   Receipts and Distribution – This basically includes distribution of correspondence to designated recipients.   **(0.5 Mark)**

4.   Filling, Search, Retrieval and Follow up – This is related to filling, indexing, searching of documents, which takes up significant time.   **(0.5 Mark)**

5.   Calculations – These include the usual calculator functions like routine arithmetic, operations for bill passing, interest calculations, working out the percentages and the like   **(0.5 Mark)**

6.   Recording Utilization of Resources – This includes, where necessary, record keeping in respect to specific resources utilized by office personnel.   **(0.5 Mark)**

All the activities mentioned have been made very simple, efficient and effective by the use of computers. The application of computers to handle the office activities is also termed as office automation   **(0.5 Mark)**

Answer-2 (a) :

Two primary methods, which are used for the analysis of the scope of a project in SDLC are given as follows:

1.   **Reviewing Internal Documents:** The analysts conducting the investigation first try to learn about the organization involved in, or affected by, the project. For example, to review an inventory system proposal, an analyst may try to know how the inventory department operates and who are the managers and supervisors. Analysts can usually learn these details by examining organization charts and studying written operating procedures.   **(2 Marks)**

2.   **Conducting Interviews:** Written documents tell the analyst how the systems should operate, but they may not include enough details to allow a decision to be made about the merits of a systems proposal, nor do they present users' views about current operations. To learn these details, analysts use interviews. Interviews allow analysts to know more about the nature of the project request and the reasons for submitting it. Usually, preliminary investigation interviews involve only management and supervisory personnel.   **(2 Marks)**

Answer-2 (b) :

Unit Testing: Unit testing is a software verification and validation method in which a programmer tests if individual units of source code are fit for use. A unit is the smallest testable part of an application, which may be an individual program, function, procedure, etc. or may belong to a base/super class, abstract class or derived/child class.   **(1.5 Marks)**

Unit tests are typically written and run by software developers to ensure that code meets its design and behaves as intended. The goal of unit testing is to isolate each component of the program and show that they are correct. A unit test provides a strict, written contract that the piece of code must satisfy **(1.5 Marks)**
There are five categories of tests that a programmer typically performs on a program unit. Such typical tests are described as follows:

1. **Functional Tests:** Functional Tests check 'whether programs do, what they are supposed to do or not'. The test plan specifies operating conditions, input values, and expected results, and as per this plan, programmer checks by inputting the values to see whether the actual result and expected result match **(1 Mark)**

2. **Performance Tests:** Performance Tests should be designed to verify the response time, the execution time, throughput, primary and secondary memory utilization and the traffic rates on data channels and communication links. **(1 Mark)**

3. **Stress Tests:** Stress testing is a form of testing that is used to determine the stability of a given system or entity. It involves testing beyond normal operational capacity, often to a breaking point, in order to observe the results. These tests are designed to overload a program in various ways. The purpose of a stress test is to determine the limitations of the program. For example, during a sort operation, the available memory can be reduced to find out whether the program is able to handle the situation.

    (2 Marks)

4. **Structural Tests:** Structural Tests are concerned with examining the internal processing logic of a software system. For example, if a function is responsible for tax calculation, the verification of the logic is a structural test. **(1 Mark)**

5. **Parallel Tests:** In Parallel Tests, the same test data is used in the new and old system and the output results are then compared. **(1 Mark)**

Answer-3 (a) :

Corrective controls are designed to reduce the impact or correct an error once it has been detected. Corrective controls may include the use of default dates on invoices where an operator has tried to enter the incorrect date. A Business Continuity Plan (BCP) is considered to be a corrective control **(1 Mark)**
The main characteristics of the corrective controls are:
1. Minimizing the impact of the threat;   **(0.5 Mark)**
2. Identifying the cause of the problem;   **(0.5 Mark)**
3. Providing Remedy to the problems discovered by detective controls;   **(0.5 Mark)**
4. Getting feedback from preventive and detective controls   **(0.5 Mark)**
5. Correcting error arising from a problem; and   **(0.5 Mark)**
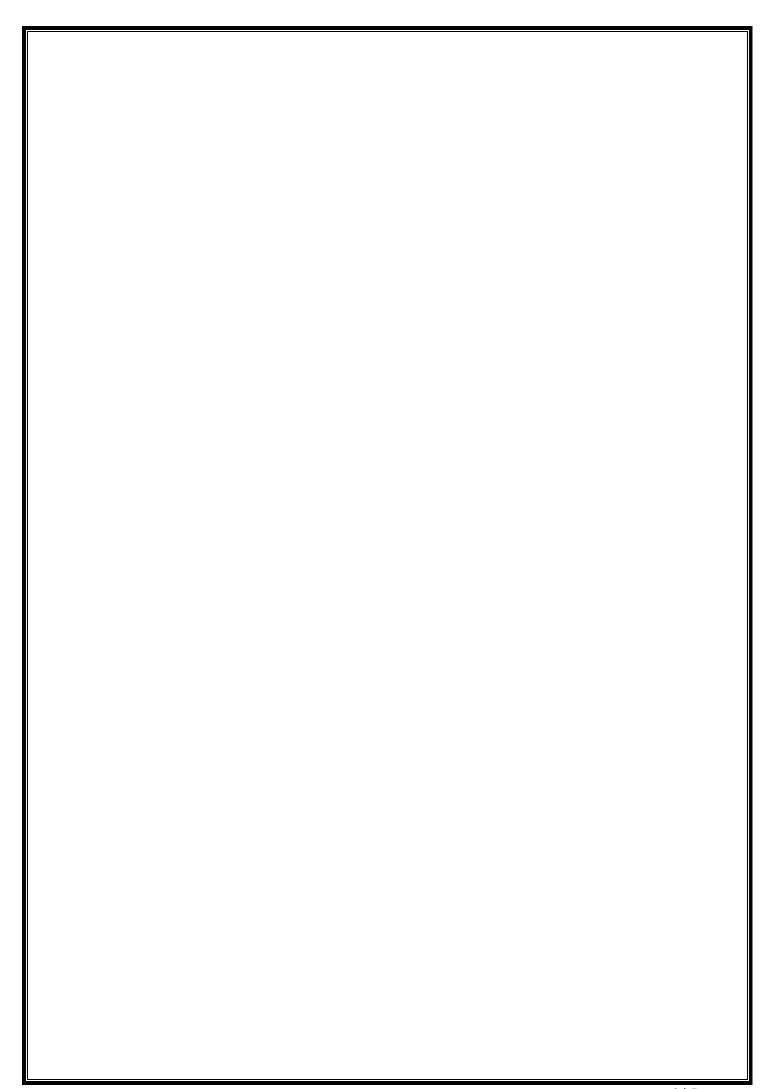6. Modifying the processing systems to minimize future occurrences of the incidents.   **(0.5 Mark)**
Some of the Corrective Controls may be Contingency planning; Backup procedure; Rerun procedures; Change input value to an application system; and Investigate budget variance and report violations. **(1 Mark)**

Answer-3 (b) :

Some of the major ways of protecting the installation against power spikes as follows
1. **Water Detectors:** These should be placed under the raised floor, near drain holes and near any unattended equipment storage facilities **(1 Mark)**
2. **Strategically Locating the Computer Room:** To reduce the risk of flooding, the computer room should not be located in the basement or ground floor of a multi- storey building. Studies reveal that the computer room located in the top floors is less prone to the risk of fire, smoke and water. **(1 Mark)**
3. Wherever possible have waterproof ceilings, walls and floors;   **(0.5 Mark)**
4. Ensure an adequate positive drainage system exists;   **(0.5 Mark)**
5. Install alarms at strategic points within the installation   **(0.5 Mark)**
6. In flood areas have the installation above the upper floors but not at the top floor **(0.5 Mark)**
7. Water proofing; and   **(0.5 Mark)**
8. Water leakage Alarms   **(0.5 Mark)**

Answer-4 (a) :

While developing a Business Continuity Plan, the key tasks that should be covered in the second phase 'Vulnerability Assessment and General definition of Requirement' are given as follows:

1. A thorough Security Assessment of the computing and communications environment including personnel practices; physical security; operating procedures; backup and contingency planning; systems development and maintenance; database security; data and voice communications security; systems and access control software security; insurance; security planning and administration; application controls; and personal computers. **(2 Marks)**

2. The Security Assessment will enable the project team to improve any existing emergency plans and disaster prevention measures and to implement required emergency plans and disaster prevention measures where none exist **(1 Mark)**

3. The Security Assessment will enable the project team to improve any existing emergency plans and disaster prevention measures and to implement required emergency plans and disaster prevention measures where none exist **(1 Mark)**

4. Define the scope of the planning effort. **(0.5 Mark)**

5. Analyze, recommend and purchase recovery planning and maintenance software required to support the development of the plans and to maintain the plans current following implementation. **(1 Mark)**

6. Develop a Plan Framework. **(0.5 Mark)**

Answer-4 (b) :

If a third-party site is to be used for recovery purposes, security administrators must ensure that a contract is written to cover the following issues:

1. How soon the site will be made available subsequent to a disaster; **(0.5 Mark)**
2. The number of organizations that will be allowed to use the site concurrently in the event of a disaster; **(0.5 Mark)**
3. The priority to be given to concurrent users of the site in the event of a common disaster; **(0.5 Mark)**
4. The period during which the site can be used **(0.5 Mark)**
5. The conditions under which the site can be used; **(0.5 Mark)**
6. The conditions under which the site can be used; **(0.5 Mark)**
7. The conditions under which the site can be used; **(0.5 Mark)**
8. What controls will be in place for working at the off-site facility **(0.5 Mark)**

Answer-5 :

The following factors need to be looked into by the auditor with regard to Building, Utilities and Transportation during the audit of BCP/DRP

1. Does the disaster recovery/ business resumption plan have a provision for having a building engineer inspect the building and facilities soon after a disaster so that damage can be identified and repaired to make the premises safe for the return of employees as soon as possible? **(1 Mark)**

2. Does the disaster recovery/business resumption plan consider the need for alternative shelter, if needed? Alternatives in the immediate area may be affected by the same disaster. **(1 Mark)**

3. Review any agreements for use of backup facilities **(1 Mark)**

4. Verify that the backup facilities are adequate based on projected needs (telecommunications, utilities, etc.). Will the site be secure? **(1 Mark)**

5. Does the disaster recovery/ business resumption plan consider the failure of electrical power, natural gas, toxic chemical containers, and pipes? **(1 Mark)**

6. Are building safety features regularly inspected and tested? **(1 Mark)**

7. Does the plan consider the disruption of transportation systems? This could affect the ability of employees to report to work or return home. It could also affect the ability of vendors to provide the goods needed in the recovery effort **(2 Mark)**